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## Mesuring Health literacy among French pupils with the HLS-Child-Q15

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## INTRODUCTION

"Health Literacy empowers, drives equity and must be an integral part of the skills, and competencies developed over a lifetime, first and foremost through the school curriculum." (WHO, 2017)

No tool measuring Health literacy by 8- to 11-year-old children validated in French.

## OBJECTIVES

This study aimed to:

- 1 Translate, adapt
- 2 Test

a short scale HLS-Child-Q15 (Bollweg and al. 2020) developed to assess generic, self-reported, health literacy among French-speaking 8-to11-year-old children.



This measure of children's health literacy is subjective.

## SAMPLE AND DATA COLLECTION

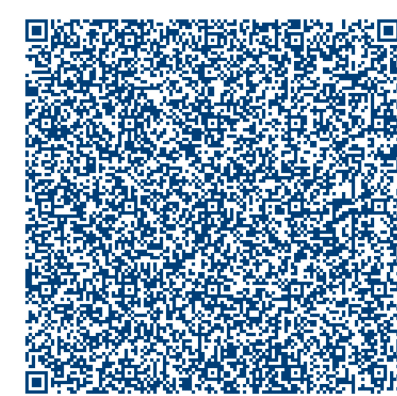
Data among **3 107 pupils** enrolled in **74 elementary schools**

Between october 2019 and March 2020

Read of HLS-Child-Q15-FR : 5 minute

Data collection : **Alliance project** (Health Literacy / Perceived self-efficacy / Demographic variables)

Contact information, Please scan me



## 1 TRANSLATION AND ADAPTATION OF THE SCALE

### 1 TRANSLATION

### METHODS

- Translation of the HLS-Child-Q15 from German to French (French native speaker + translation professional)
- 2 back-translation from French to German (1 German native speaker + 1 translation professional)
- Discussion of both phrasing

### RESULTS

Minor refinements

### 2 QUALITATIVE PRETEST

Among a small group of similar age-range (8- to 11-year-old) children in a socially disadvantaged community center to ensure accessibility

6 children : modification of grammatical structures

### 3 RESEARCH TEAM MEETING

To discuss translations, to assess the scale's content and to make the contextual adjustments based on children's feedbacks

Simplification complex wordings

### 4 EXTERNAL REVIEWING

Partner research team in educational sciences

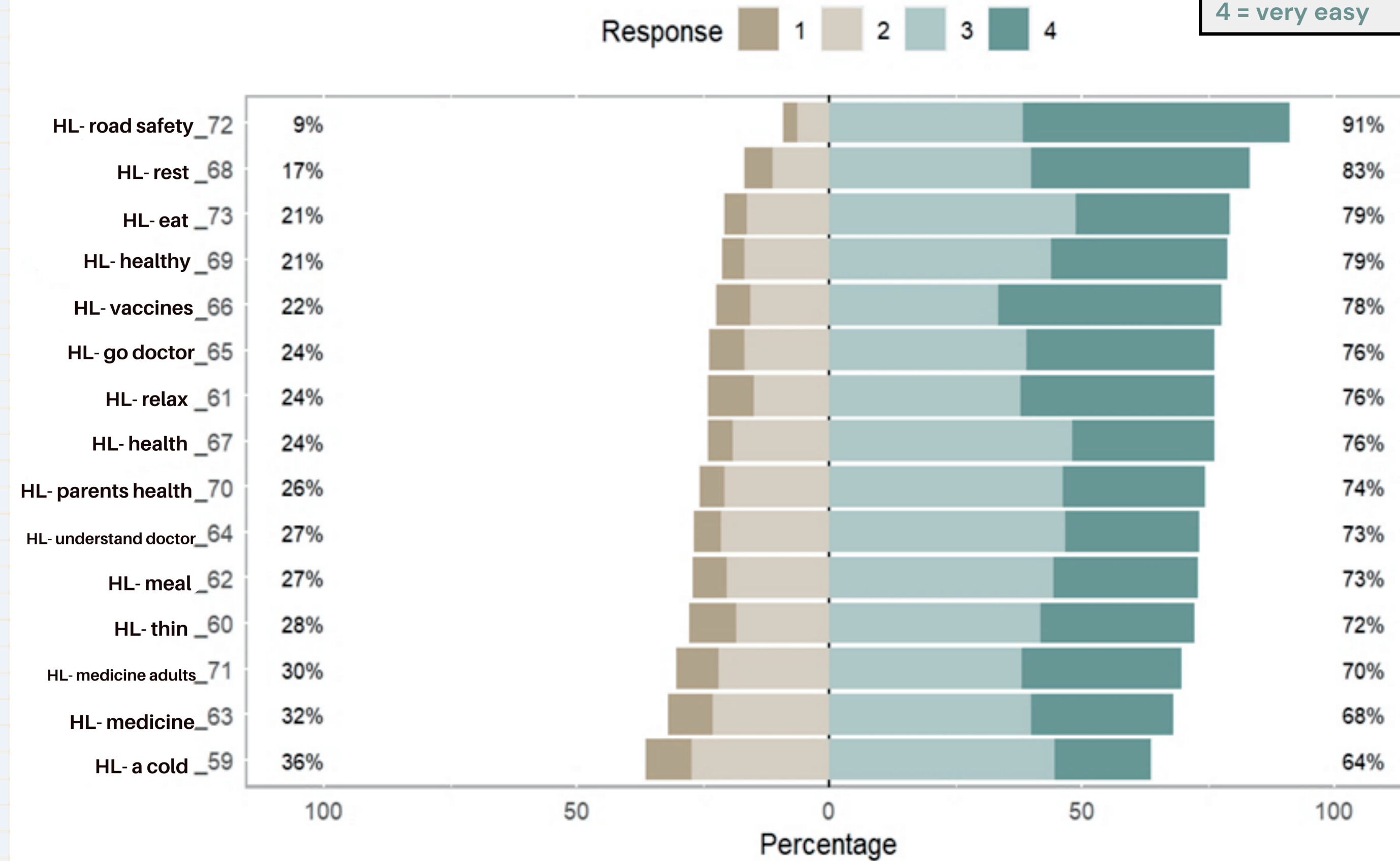
Few rewordings

## 2 VALIDATION OF THE SCALE

### ITEM ANALYSIS

- Missing answers : [2% - 6%] < 10%
- Item difficulty : [57% for Q59 - 80% for Q72]
- Variance : [0.72 - 0.94]
- Corr. ITC : [0.34 for Q61 - 0.6& for Q69]
- Corr. ITC > 0.5 for Q62, Q67, Q69, Q70

1 = very difficult, 2 = difficult, 3 = easy, 4 = very easy



Graphical representation of the distribution of items' responses

### INTERNAL CONSISTENCY

- Cronbach's alpha = 0.83
- Revelle's Omega = 0.85
- Average split-half reliability = 0.83

### INTERNAL VALIDITY

- Barlett's test of specificity :  $\chi^2(105) = 6996.3, p < 0.001$
- KMO-criterion = 0.91
- Scree plot :
  - 3-factor model possible
  - 2-factor model to keep eigenvalue > 1
- **2-factor model** : explained variance = 28%
  - Factors 1 : eigenvalues = 2.45, explained variance = 58%
  - Factor 2 : eigenvalues = 1.79, explained variance = 42%

### EXTERNAL VALIDITY : CFA

- Perceived self-efficacy (3 items) regressed on 12-item health literacy scale
  - Standard estimates = [0.47 - 0.59] for Healthcare factor's items
  - Standard estimates = [0.52 - 0.56] for Primary prevention factor's items
  - Standard estimates = [0.50 - 0.59] for PSE related items
- Covariances' estimations with perceived self-efficacy
  - 0.42 for the entire 12-item scale
  - 0.36 for the Healthcare factor
  - 0.38 for the Primary prevention factor
  - pvalues  $p < 0.001$
- Significant and moderate statistical relationship between health literacy and perceived self-efficacy

### COMPLEMENTARY ANALYSES

- **FAS-III**  
FAS middle group vs FAS 20% inf. : no significant increase in mean HLS-Child-Q15 score (p-value = 0.12)  
FAS 20% inf. Vs FAS 20% sup. : significant increase in mean HLS-Child-Q15 score (p-value < 0.001)
  - **Contextual data**  
No difference between urban vs. rural  
No sign difference between public vs. private schools
  - **Sex**  
Boys vs. girls : significant decrease in mean HLS-Child-Q15 score (p-value < 0.01)
  - **Age**  
Significant increase (p-value = 0.02) of mean HLS-Child-Q15 score in age (0.05 per year)

### CONSTRUCT VALIDITY : EFA

Models' fit indices

Model	Factors	Items	$\chi^2$ (nvalue)	Df	TLI (>0.90)	CFI (>0.90)	RMSEA (<0.05)	SRMR (<0.05)	AIC	BIC
A (15)	Health literacy	59 - 73	644 (p < 0.01)	90	0.89	0.91	0.045 (p = 0.999)	0.037	106645.1	106916.6
B (15)	Healthcare Primary prevention	59,63,64,65,66,67,68,70,71,72 60,61,62,69,73	440 (p < 0.01)	88	0.93	0.94	0.036 (p > 0.999)	0.030	106374.7	106658.2
C (15)	Healthcare Primary prevention Promotion	59,63,64,65,66,67,70,71 60,62,69,73 61,68,72	421 (p < 0.01)	87	0.93	0.95	0.035 (p > 0.999)	0.029	106342.1	106631.7
D (12)	Healthcare Primary prevention	59,63,64,65,66,67,70,71 60,62,69,73	299 (p < 0.01)	52	0.94	0.95	0.039 (p > 0.999)	0.030	85295.6	85524.9
E (15)	Access Understand Apply	59,60,61,62 63,64,65,66,67,68 69,70,71,72,73	611 (p < 0.01)	87	0.90	0.91	0.044 (p > 0.999)	0.036	106600.9	106737.9

## CONCLUSION

Statistics showed a high internal consistency. The exploratory factor analysis suggested a two-dimensional thematic scale related to healthcare and primary prevention. Several indicators also suggested that the scale could be reduced to 12 items.

## PARTNERS AND FUNDINGS



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